

Form PTO-1449  
(REV. 7-80)

(modified)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.

SERIAL NO.

Information Disclosure Statement  
Filed By Applicant  
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ENZ-1 (Cont.) Div. II 130,097

APPLICANT

David C. Ward, et al.

FILING DATE  
12/7/87GROUP  
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
Jrc	AA	3 3 2 8 3 8 9	6/27/67	Shimizu et al.	260	211.5	
	AB	3 3 3 7 5 3 0	8/22/67	Hanze	260	211.5	
	AC	3 3 3 8 8 8 2	8/29/67	Wechter	260	211.5	
	AD	3 8 0 4 8 2 6	4/10/74	Schelt et al.	260	211.5R	
	AE	3 8 9 3 9 9 8	7/3/75	John A. Secrist III, et al.	260	211.5R	
	AF	3 9 1 5 9 5 8	10/28/75	Shuman et al.	260	211.5R	
	AG	3 9 1 7 5 8 3	11/4/75	Meyer et al.	260	211.5R	
	AH	3 9 6 0 8 4 0	6/1/76	John A. Secrist III et al.	260	211.5R	
	AI	3 9 6 8 1 0 1	7/6/76	Christensen et al.	260	211.5R	
	AJ	4 0 0 8 3 6 3	2/15/77	Luciano Re et al.	536	28	
	AK	4 0 3 8 4 8 0	7/26/77	Robins et al.	536	27	

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	AL	2 6 1 8 4 1 9	11/4/76	German Offenlegungsschrift	2			X
	AM	2 6 1 8 5 1 1	11/4/76	German Offenlegungsschrift	2			X
	AN	3 0 4 5 3 7 5	7/1/82	German Offenlegungsschrift	3			X
Jrc	AO	2 0 1 9 4 0 8	10/31/79	United Kingdom Pat. Appln.	3			
	AP	2 0 2 6 6 9 0	2/6/80	United Kingdom Pat. Appln.	3			

## Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

AR	J. G. J. Bauman et al., "A New Method for Fluorescence Microscopical Localization of Specific DNA Sequences by In Situ Hybridization of Fluorochrome-Labelled RNA", Exp. Cell Res., 128, pp. 485-90 (1980) ["Bauman I"]
AS	
AT	J. G. J. Bauman et al., "Rapid and High Resolution Detection of in situ Hybridisation to Polytene Chromosomes Using Fluorochrome-Labeled RNA," Chromosoma (Berl.) 84, pp. 1-18 (1981) ["Bauman II"]

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EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
<del>AA</del>	<del>4 0 4 8 3 0 7</del>	<del>9/13/77</del>	<del>Yokota et al.</del>	424	180	
<i>AR</i>	AB 4 0 8 6 4 1 7	4/25/78	Ishida et al.	536	29	
<del>AC</del>	<del>4 0 8 8 6 3 9</del>	<del>5/9/78</del>	<del>Zappelli et al.</del>	260	112.5R	
<del>AD</del>	<del>4 0 9 6 3 2 4</del>	<del>6/20/78</del>	<del>Kelly et al.</del>	536	23	
<del>AE</del>	<del>4 1 3 4 7 9 2</del>	<del>1/16/79</del>	<del>Boguslaski et al.</del>	195	99	
<del>AF</del>	<del>4 1 5 1 3 4 9</del>	<del>4/24/79</del>	<del>Traeger et al.</del>	536	28	
<del>AG</del>	<del>4 1 7 1 4 3 2</del>	<del>10/16/79</del>	<del>Carrico et al.</del>	536	26	
<del>AH</del>	<del>4 2 1 3 8 9 3</del>	<del>7/22/80</del>	<del>Carrico et al.</del>	260	112.5	
<i>AR</i>	AI 4 2 2 8 2 3 7	10/14/80	Hevey et al.	435	7	
<i>AR</i>	AJ 4 2 3 0 6 9 8	10/28/80	Bobek et al.	424	180	
<i>AR</i>	AK 4 2 3 0 7 9 7	10/28/80	Boguslaski, et al.	435	7	

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<del>AL</del>	<del>2 0 3 4 3 2 3</del>	<del>6/4/80</del>	<del>United Kingdom Pat. Appln.</del>	3			
<del>AM</del>	<del>2 0 4 1 9 2 2</del>	<del>9/17/80</del>	<del>United Kingdom Pat. Appln.</del>	3			
<del>AN</del>	<del>2 0 4 5 2 3 9</del>	<del>10/29/80</del>	<del>United Kingdom Pat. Appln.</del>	3			
<del>AO</del>	<del>2 1 2 5 9 6 4</del>	<del>3/14/84</del>	<del>United Kingdom Pat. Appln.</del>	3			
<del>AP</del>	<del>0 7 0 6 8 5</del>	<del>1/26/83</del>	<del>EPO Patent Application</del>	3			

## Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

<i>AR</i>	AR	E. A. Bayer and M. Wilchek, "The Use of the Avidin-Biotin Complex as a Tool in Molecular Biology," in <u>Methods of Biochemical Analysis</u> , 26, pp. 1-45 (1980)
<i>AR</i>	AS	D. Bergstrom and M. Ogawa, "C-5 Substituted Pyrimidine Nucleosides. 2. Synthesis Via Olefin Coupling To Organopalladium Intermediates Derived From Uridine and 2'-Deoxyuridine, <u>J. Am. Chem. Soc.</u> , 100, pp. 8106-8112 (1978) ["Bergstrom I"]
	AT	

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AB						
AC	4 2 6 1 8 9 3	4/14/81	Boguslaski et al.	260	326N	
AD	4 2 6 7 1 7 1	5/12/81	Bergstrom et al.	424	180	
AE	4 3 0 2 2 0 4	11/24/81	Wahl et al.	23	230.3	
AF	4 3 1 8 9 8 0	3/9/82	Boguslaski et al.	435	7	
AG	4 3 1 8 9 8 1	3/9/82	Burd et al.	435	7	
AH	4 3 1 8 9 8 2	3/9/82	Hornby et al.	435	7	
AI	4 3 5 5 1 6 5	10/19/82	Boguslaski et al.	544	237	
AJ	4 3 5 8 5 3 5	11/9/82	Falkow et al.	435	5	
AK	4 3 6 3 7 5 9	12/14/82	Boguslaski et al.	260	112.7	

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								YES				NO		
<del>AL</del>				7	0	6	8	7	1/26/83	<del>EPO Patent Application</del>	3			
<del>AM</del>		1	5	4	8	7	4	1	7/18/79	<del>Great Britain Patent</del>	2	33/16		
<del>AN</del>		1	5	5	2	6	0	7	9/19/79	<del>Great Britain Patent</del>	2	33/16		
<del>AO</del>		4	3	2	4	1	9	1	10/18/43	<del>Japanese Patent Application</del>	16E	611.2		X
<del>AP</del>		5	8	6	2	1	9	4	4/13/83	<del>Japanese Patent Application</del>	3C07H	19/06		X

## Other Documents (Including Author, Title, Date, Pertinent Pages, Etc.)

AR	D. Bergstrom and J. L. Ruth, "Properties of C-5 Mercurated Pyrimidine Nucleosides," <u>J. Carbohydrates, Nucleotides and Nucleosides</u> , 4, pp. 257-289 (1977) ["Bergstrom II"]
AS	C. F. Bigge et al., "Palladium-Catalyzed Coupling Reactions of Uracil Nucleosides and Nucleotides," <u>J. Am. Chem. Soc.</u> , 102, pp. 2033-2038 (1980)
AT	C. Brandon et al., "Structure of a New Pyrimidine from <u>Bacillus Subtilis</u> Phage SP-15 Nucleic Acid", <u>Nature New Biology</u> , 239, pp. 70-71 (1972)

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AA	4 3 7 4 9 2 5	2/22/83	Litman et al.	435	7	
AB	4 3 8 0 5 8 0	4/19/83	Boguslaski et al.	435	7	
AC	4 3 8 3 0 3 1	5/10/83	Boguslaski et al.	435	7	
AD	4 4 4 6 2 3 1	5/1/84	Self	435	7	
AE	4 4 6 9 8 6 3	9/4/84	Ts'o et al.	536	27	
AF	5 7 2 0 0 8	4/28/75	Boguslaski et al. *			
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**FOREIGN PATENT DOCUMENTS**

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION
AL 8 3 0 2 2 7 6	7/7/83	PCT Patent Application	3C07H	19/20	YES NO
AM 8 3 0 2 2 7 7	7/7/83	PCT Patent Application	3C07H	21/00	X * *
AN 8 3 0 2 2 8 6	7/7/83	PCT Patent Application	3C12Q	1/68	X * *
AO					
AP					

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AR	T. R. Broker et al., "Electron Microscopic Visualization of tRNA Genes with Ferritin-Avidin: Biotin Labels," <u>Nucl. Acids Res.</u> , 5, pp. 363-83 (1978)
AS	R. M. K. Dale et al., "Direct Covalent Mercuration of Nucleotides and Polynucleotides," <u>Biochemistry</u> , 14, pp. 2447-2457 (1975) ["Dale I"]
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\* United States patent application  
\*\* Abstract only.

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AR	R. M. K. Dale et al., "The Synthesis and Enzymatic Polymerization of Nucleotides Containing Mercury: Potential Tools for Nucleic Acid Sequencing and Structural Analysis, Proc. Natl. Acad. Sci. USA, 70, pp. 2238-2242 (1973) ["Dale II"]
AS	W. S. Dallas and S. Falkow, "Molecular and Genetic Analysis of a DNA Sequence Encoding for Enterotoxin Synthesis in Escherichia Coli," Thirteenth Joint Conference on Cholera, The U.S.-Japan Cooperative Medical Science Program (1979) ["Dallas I"]
AT	

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AR	W. S. Dallas et al., "The Characterization of an Escherichia Coli Plasmid Determinant That Encodes for the Production of a Heat-Labile Enterotoxin," <u>Plasmids of Medical Environmental and Commercial Importance</u> , K. N. Timmis and A. Puhler, editors, Elsevier/North-Holland Biomedical Press (1979) ["Dallas II"]
AS	
AT	D. J. Eckermann and R. H. Symons, "Sequence at the Site of Attachment of an Affinity-Label Derivative of Puromycin on 23-S Ribosomal RNA of <u>Escherichia coli</u> Ribosomes," <u>Eur. J. Biochem.</u> , 82, pp. 225-34 (1978)

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Sheet 7 of 19

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Pre	AR	M. Ya. Feldman, Reactions of Nucleic Acids and Nucleoproteins With Formaldehyde, ____ Ed. (19__)
	AS	H. G. Gratzner, "Monoclonal Antibody to 5-Bromo- and 5-Iododeoxyuridine: A New Reagent for Detection of DNA Replication," Science, 218, pp. 474-475 (1982)
	AT	M. Grunstein and D. Hogness, "Colony Hybridization: A Method for the Isolation of Cloned DNAs That Contain a Specific Gene", Proc. Natl. Acad. Sci. USA, 72, pp. 3961-65 (1975)

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ARC	AR	J. L. Guesdon et al., "The Use of Avidin-Biotin Interaction In Immunoenzymatic Techniques", <u>J. Histochem. and Cytochem.</u> 27, pp. 1131-39 (1979)
ARC	AS	H. Hayashi and K. Nakanishi, "Synthesis and Absolute Configuration of (+)-5-(4',5'-Dihydroxypentyl)uracil from <u>Bacillus Subtilis</u> Phage SP-15 Deoxyribonucleic Acid," <u>J. Am. Chem. Soc.</u> , 95, pp. 4081-4083 (1973) [Hayashi I]
ARC	AT	H. Hayashi et al. "Structure and Synthesis of Dihydroxypentyl-uracil from Bacteriophage SP-15 Deoxyribonucleic Acid," <u>J. Am. Chem. Soc.</u> , 95, pp. 8749-8757 (1973) [Hayashi II]

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AR	<del>K. Hofmann et al.</del> , "Iminobiotin Affinity Columns And Their Application To Retrieval Of Streptanidin", <u>Proc. Natl. Acad. Sci. USA</u> , 77, pp. 4666-68 (1980)
AS	<del>E. S. Huang and J. S. Pagano</del> , "Nucleic Acid Hybridization Technology and Detection of Proviral Genomes," <u>Methods Virol.</u> 6, pp. 457-497 (1977)
AT	<del>A. M. Jeffrey et al.</del> , "Benzo[a] pyrene-Nucleic Acid Derivative Found In Vivo: Structure of a Benzo[a] pyrenetetrahydrodiol Epoxide-Guanosine Adduct," <u>J. Am. Chem. Soc.</u> , 98, pp. 5714-5715 (1976)

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AR	R. G. Kallen et al., "The Occurrence of a New Pyrimidine Base Replacing Thymine in a Bacteriophage DNA: 5-Hydroxymethyl Uracil," J. Mol. Biol. 5, pp. 248-250 (1962)
AS	D. E. Kennel, "Principles And Practicss of Nucleic Acid Hybridization" Pro. Nucl. Acid Res., 11, 259-301 (1971)
AT	M. Kureeda et al., "Alkylation of Polyguanylic Acid at the 2-Amino Group and Phosphate by the Potent Mutagen ( $\pm$ )-7 $\beta$ , 8 $\alpha$ -Dihydroxy-9 $\beta$ , 10 $\beta$ epoxy -7,8,9,10-tetrahydrobenzo[a]pyrene," J. Am. Chem. Soc., 98, pp. 6720-6722 (1976)

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	AR		T. T. Kuo et al., "5-Methylcytosine Replacing Cytosine in the Deoxyribonucleic Acid of a Bacteriophage for <i>Xanthomonas oryzae</i> ," <i>J. Mol. Biol.</i> , 34, pp. 373-375 (1968)
	AS		
	AT		P. R. Langer et al., "Enzymatic Synthesis of Biotin-Labeled Polynucleotides: Novel Nucleic Acid Affinity Probes", <i>Proc. Natl. Acad. Sci. USA</i> , 78, pp. 6633-37 (1981) ["Langer I"]

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